

In the Claims:

Please cancel Claims 1, 5, 7-13, and 17-33, and add new Claims 34-100 as shown below.

Sub
#1
34. (New) A method for delivering a therapeutic or diagnostic agent to a cell, comprising:

(a) treating a cell with a combination of a transport agent and a therapeutic or diagnostic agent, wherein the combination is taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the combination, wherein the transport agent is effective in disrupting the endosomal membrane, and wherein when the transport agent is a peptide, the therapeutic agent is not a nucleic acid or a peptide; and

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(b) releasing the therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

35. (New) The method of Claim 34, further comprising subjecting the treated cell to a stimulus to enhance the release of the therapeutic or diagnostic agent from the endosome to cytoplasm.

36. (New) The method of Claim 35, wherein the stimulus is ultrasound.

37. (New) The method of Claim 34, wherein the transport agent is hydrophilic at pH from about 6.8 to about 7.5, and hydrophobic at pH from about 5.0 to about 6.5.

38. (New) The method of Claim 34, wherein the transport agent is hydrophilic at about pH 7.4 and hydrophobic at pH from about 5.1 to about 5.5.

39. (New) The method of Claim 34, wherein the transport agent is hydrophobic at about pH 7.4.

40. (New) The method of Claim 34, wherein the transport agent comprises a polycarboxylic acid polymer.

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41. (New) The method of Claim 34, wherein the transport agent comprises an poly(alkylacrylic acid).

42. (New) The method of Claim 34, wherein the transport agent comprises a poly(alkylacrylic acid) having a C1-C6 straight, branched, or cyclic alkyl group.

43. (New) The method of Claim 34, wherein the transport agent comprises a poly(alkylacrylic acid) made from a monomer selected from the group consisting of acrylic acid, methylacrylic acid, ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

44. (New) The method of Claim 34, wherein the transport agent comprises a random copolymer made from copolymerization of acrylic acid with a monomer selected from the group consisting of ethyl acrylate, propyl acrylate, butyl acrylate, and combinations thereof.

45. (New) The method of Claim 34, wherein the transport agent comprises a random copolymer made from copolymerization of methylacrylic acid with a monomer selected from the group consisting of ethyl acrylate, propyl acrylate, butyl acrylate, and combinations thereof.

46. (New) The method of Claim 34, wherein the transport agent comprises a polymer selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and combinations thereof.

47. (New) The method of Claim 34, wherein the transport agent comprises a polymer selected from the group consisting of random, block, and graft copolymers.

48. (New) The method of Claim 34, wherein the transport agent comprises a polymer selected from the group consisting of random, block, and graft copolymers made from a monomer selected from the group consisting of acrylic acid, methylacrylic acid, ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

49. (New) The method of Claim 34, wherein the transport agent comprises a polymer selected from the group consisting of random, block, and graft copolymers comprising sulfonate groups.

50. (New) The method of Claim 34, wherein the transport agent comprises a polymer selected from the group consisting of random, block, and graft copolymers comprising cationic groups.

51. (New) The method of Claim 34, wherein the transport agent comprises a random copolymer made from copolymerization of acrylic acid with a monomer selected from the group consisting of ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

52. (New) The method of Claim 34, wherein the transport agent comprises a random copolymer made from copolymerization of methylacrylic acid with a monomer selected from the group consisting of ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

53. (New) The method of Claim 34, wherein the transport agent comprises a peptide.

54. (New) The method of Claim 34, wherein the transport agent comprises GALA.

55. (New) The method of Claim 34, wherein the transport agent comprises a GALA-poly(alkylacrylic acid) graft copolymer.

56. (New) The method of Claim 34, wherein the transport agent comprises a GALA-poly(alkylacrylic acid) block copolymer.

57. (New) The method of Claim 34, wherein the therapeutic agent comprises a nucleic acid selected from the group consisting of a nucleoside, a nucleotide, and an oligonucleotide.

58. (New) The method of Claim 34, wherein the therapeutic agent comprises a protein, lipoprotein, glycoprotein, or peptide.

59. (New) The method of Claim 34, wherein the therapeutic agent comprises a sugar or polysaccharide.

60. (New) The method of Claim 34, wherein the therapeutic agent comprises a toxin.

61. (New) The method of Claim 34, wherein the therapeutic agent comprises a toxin selected from the group consisting of ricin, diphtheria toxin B chain, adenovirus peptide, influenza virus peptide, GALA peptide, abrin, modeccin, Pseudomonas exotoxin, bryodin, mistletoe lectin, Shiga toxin, Escherichia coli labile toxin, Pertussis toxin, cholera toxin, anthrax toxin, viscumin, spaorin, gelonin, momordin, trichlosanthin, and pokeweed antiviral protein.

62. (New) The method of Claim 34, wherein the therapeutic agent comprises ricin.

63. (New) The method of Claim 34, wherein the transport agent is poly(propylacrylic acid) and the therapeutic agent is ricin.

64. (New) The method of Claim 34, wherein the diagnostic agent comprises a radiolabeled agent.

65. (New) The method of Claim 34, wherein the diagnostic agent comprises a fluorescecently labeled agent.

66. (New) The method of Claim 34, wherein the diagnostic agent comprises an enzymatically labeled agent.

67. (New) The method of Claim 34, wherein the diagnostic agent comprises a contrast agent.

68. (New) The method of Claim 34, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent.

69. (New) The method of Claim 34, wherein the therapeutic or diagnostic agent is ionically coupled to the transport agent.

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70. (New) The method of Claim 34, wherein the combination further comprises a targeting agent.

71. (New) The method of Claim 70, wherein the targeting agent is an antibody.

72. (New) The method of Claim 70, wherein the targeting agent is a ligand for a cell surface receptor.

73. (New) The method of Claim 70, wherein the targeting agent comprises a transport agent conjugated to an antibody.

74. (New) A composition for delivering a therapeutic or diagnostic agent to a cell, comprising a combination of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the transport agent is effective in disrupting the endosomal membrane, and wherein when the transport agent is a peptide, the therapeutic agent is not a nucleic acid or a peptide.

75. (New) The composition of Claim 74, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent.

76. (New) The composition of Claim 74, wherein the therapeutic or diagnostic agent is ionically coupled to the transport agent.

77. (New) The composition of Claim 74, wherein the transport agent is hydrophilic at pH from about 6.8 to about 7.5, and hydrophobic at pH from about 5.0 to about 6.5.

78. (New) The composition of Claim 74, wherein the transport agent is hydrophilic at about pH 7.4 and hydrophobic at pH from about 5.1 to about 5.5.

79. (New) The composition of Claim 74, wherein the transport agent is hydrophobic at about pH 7.4.

80. (New) The composition of Claim 74, wherein the transport agent comprises an poly(alkylacrylic acid).

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81. (New) The composition of Claim 74, wherein the transport agent comprises a poly(alkylacrylic acid) made from a monomer selected from the group consisting of acrylic acid, methylacrylic acid, ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

82. (New) The composition of Claim 74, wherein the transport agent comprises a polymer selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and combinations thereof.

83. (New) The composition of Claim 74, wherein the transport agent comprises a polymer selected from the group consisting of random, block, and graft copolymers.

84. (New) The composition of Claim 74, wherein the combination further comprises a targeting agent.

85. (New) The composition of Claim 74, wherein the targeting agent is an antibody.

86. (New) The composition of Claim 74, wherein the targeting agent is a ligand for a cell surface receptor.

87. (New) The composition of Claim 74, wherein the transport agent comprises a random copolymer made from copolymerization of acrylic acid with a monomer selected from the group consisting of ethyl acrylate, propyl acrylate, butyl acrylate, and combinations thereof.

88. (New) The composition of Claim 74, wherein the transport agent comprises a random copolymer made from copolymerization of methylacrylic acid with a monomer selected from the group consisting of ethyl acrylate, propyl acrylate, butyl acrylate, and combinations thereof.

89. (New) The composition of Claim 74, wherein the transport agent comprises a random copolymer made from copolymerization of acrylic acid with a monomer selected from

the group consisting of ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

90. (New) The composition of Claim 74, wherein the transport agent comprises a random copolymer made from copolymerization of methylacrylic acid with a monomer selected from the group consisting of ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.

91. (New) A method for releasing a therapeutic or diagnostic agent from a cell, comprising:

(a) treating a cell having a cell membrane with a therapeutic or diagnostic agent, wherein the therapeutic or diagnostic agent is taken into the cell;

(b) treating the cell with a transport agent, wherein the transport agent is effective in disrupting the cell membrane; and

(c) releasing the therapeutic or diagnostic agent from the cell by the action of the transport agent on the cell membrane.

92. (New) The method of Claim 91, further comprising subjecting the treated cell to a stimulus to enhance the release of the therapeutic or diagnostic agent from the endosome to cytoplasm.

93. (New) The method of Claim 91, wherein the stimulus is ultrasound.

94. (New) The method of Claim 91, wherein the transport agent is hydrophilic at pH from about 6.8 to about 7.5, and hydrophobic at pH from about 5.0 to about 6.5.

95. (New) The method of Claim 91, wherein the transport agent is hydrophilic at about pH 7.4 and hydrophobic at pH from about 5.1 to about 5.5.

96. (New) The method of Claim 91, wherein the transport agent is hydrophobic at about pH 7.4.

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97. (New) The method of Claim 91, wherein the transport agent comprises a polycarboxylic acid polymer.

98. (New) The method of Claim 91, wherein the transport agent comprises an poly(alkylacrylic acid).

99. (New) The method of Claim 91, wherein the transport agent comprises a poly(alkylacrylic acid) having a C1-C6 straight, branched, or cyclic alkyl group.

100. (New) The method of Claim 91, wherein the transport agent comprises a poly(alkylacrylic acid) made from a monomer selected from the group consisting of acrylic acid, methylacrylic acid, ethylacrylic acid, propylacrylic acid, butylacrylic acid, and combinations thereof.